

Translation

PATENT COOPERATION TREATY

PCT/DE2002/004729



PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference R. 41470 Bd/Ho	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2002/004729	International filing date ( <i>day/month/year</i> ) 23 December 2002 (23.12.2002)	Priority date ( <i>day/month/year</i> ) 15 January 2002 (15.01.2002)
International Patent Classification (IPC) or national classification and IPC F02D 41/34, F02P 17/12		
Applicant ROBERT BOSCH GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.  <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of <u>1</u> sheets.
3. This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 12 June 2003 (12.06.2003)	Date of completion of this report 09 January 2004 (09.01.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/DE2002/004729

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages 1-11, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages 1-11, 13-17, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages 12, filed with the letter of 21 October 2003 (21.10.2003)
- ☒ the drawings:  
 pages 1/2-2/2, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: III.1

It is not clear what is meant by a measuring device "for measuring ... a secondary voltage ... during the rotation of the crankshaft without the supply of fuel", since it is not discernible how a measuring device of this type differs from a measuring device for measuring a secondary voltage during the rotation of the crankshaft with the supply of fuel. Both measuring devices need only to measure the secondary voltage.

The device according to claim 12 would be clearer if claim 12 defined that the device is provided with:

means for suspending the supply of fuel during the internal combustion engine strokes prior to and during the measurement of the primary or secondary voltage or the primary or secondary current.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Publication No.

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-11	YES
	Claims		NO
Inventive step (IS)	Claims	1-11	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO

## 2. Citations and explanations

US-A-5370099 (claims, figures, columns 2-4) describes the use of voltage signals for identifying the phase of an internal combustion engine cylinder, said signals being measured over the course of the entire burning life of an ignition spark in the combustion chamber of this cylinder; the voltage signals generated when an ignition spark is triggered at the top dead center of the compression stroke being compared with the voltage signals generated when an ignition spark is triggered at the top dead center of the exhaust stroke of the same cylinder.

Proceeding from the aforementioned prior art, a person skilled in the art would anticipate from US-A-5174267 (abstract, claims, figures, column 8) also using the burning life of an ignition spark close to the respective top dead point for identifying the phase in order to distinguish a compression stroke from an exhaust stroke.

In both documents, combustion takes place during ignition at the top dead center of the compression stroke, since fuel has been added.

However, using the burning life of an ignition spark in one and the same cylinder at two successive top dead

centers without the supply of fuel in order to determine the phase of the cylinder, thereby preventing damage to the catalytic converter from the leaking of unburned fuel injected directly into the combustion chamber, is not obvious from those documents.

The subject matter of claim(s) 1 (to 11) therefore involves an inventive step.